

1 1. A method comprising:
 2 receiving a first program unit in a parallel
 3 computing environment having a team of parallel threads
 4 including at least a first and second thread, the first
 5 program unit including a memory copy operation to be
 6 performed between the first thread and the second thread;
 7 and
 8 translating the first program unit into a
 9 second program unit, the second program unit to associate
 10 the memory copy operation with a set of one or more
 11 instructions, the set of instructions to ensure that the
 12 second thread copies data based, in part, on a first
 13 descriptor associated with the first thread.

1 2. The method of claim 1 further comprising
 2 copying the address of the first descriptor to a buffer
 3 and copying data into a memory area associated with the
 4 second thread based, in part, on address and data
 5 information associated with the first descriptor.

1 3. The method of claim 2 further comprising
 2 copying data into a memory area associated with second
 3 thread utilizing, in part, a second descriptor associated
 4 with the second thread.

1 4. The method of claim 1 further comprising
 2 enabling the first thread to copy an address of the first
 3 descriptor to a buffer and setting a signal to enable the
 4 second thread to copy data associated with the first

5 descriptor to a memory area associated with the second
6 thread.

1 5. The method of claim 4 further comprising
2 enabling the first thread to enter a wait state after the
3 signal is set.

1 6. The method of claim 5 further comprising
2 releasing the first thread from a wait state upon
3 completion of the data copy operation by the second
4 thread.

1 7. The method of claim 5 further comprising
2 enabling the first thread to copy an address of the first
3 descriptor to one of two buffer areas.

1 8. The method of claim 1 further comprising
2 receiving the first program unit in source code format
3 and translating the first program unit into a second
4 program unit in source code format.

1 9. A machine-readable medium that provides
2 instructions, that when executed by a machine, enables
3 the machine to perform operations comprising:
4 receiving a first program unit in a parallel
5 computing environment, the first program unit including a
6 memory copy operation to be performed between a first
7 thread in a team of threads and a second thread in the
8 team of threads; and

9 translating the first program unit into a
 10 second program unit, the second program unit to associate
 11 the memory copy operation with a set of one or more
 12 instructions, the set of instructions to ensure that the
 13 second thread copies data based, in part, on a first
 14 descriptor associated with the first thread.

1 10. The machine-readable medium of claim 9, further
 2 comprising copying the address of the first descriptor to
 3 a buffer and copying data into a memory area associated
 4 with the second thread based, in part, on address and
 5 data information associated with the first descriptor.

1 11. The machine-readable medium of claim 10,
 2 further comprising copying data into a memory area
 3 associated with second thread based utilizing, in part, a
 4 second descriptor associated with the second thread.

1 12. The machine-readable medium of claim 9, further
 2 comprising enabling the first thread to copy an address
 3 of the first descriptor to a buffer and setting a signal
 4 to enable the second thread to copy data associated with
 5 the first descriptor to a memory area associated with the
 6 second thread.

1 13 The machine-readable medium of claim 12,
 2 further comprising enabling the first thread to enter a
 3 wait state after the signal is set.

1 14. The machine-readable medium of claim 13,
 2 further comprising releasing the first thread from a wait

3 state upon completion of the data copy operation by the
4 second thread.

1 15. The machine-readable medium of claim 13,
2 further comprising enabling the first thread to copy an
3 address of the first descriptor to one of two buffer
4 areas.

1 16. The machine-readable medium of claim 12,
2 further comprising copying data into a memory area
3 associated with second thread utilizing, in part, a
4 second descriptor associated with the second thread.

1 17. The machine-readable medium of claim 9 further
2 comprising receiving the first program unit in source
3 code format and translating the first program unit into
4 the second program unit in source code format.

1 18. A method comprising:
2 receiving a first program unit in a parallel
3 computing environment and translating the first program
4 unit, in part, into one or more computer instructions,
5 the instructions enabling a second thread in a team of
6 threads to copy data, into a memory area associated with
7 the second thread, from a private memory area associated
8 with a first thread; and
9 copying the address of a descriptor into a buffer
10 utilized by the second thread, in part, to copy data
11 from the memory area associated with the first thread.

1 19. The method of claim 18, further comprising
2 creating a descriptor utilized, in part, by the second
3 thread to copy data into the memory area associated with
4 the second thread.

1 20. The method of claim 19, further comprising
2 setting a signal by the first thread enabling the second
3 thread to copy the data from the memory area associated
4 with the first thread.

1 21. The method of claim 20, further comprising
2 entering a wait state by the first thread until the
3 second thread copies the data from the memory area
4 associated with the first thread.

1 22. An apparatus comprising:
2 a memory including a shared memory location;
3 and
4 a translation unit coupled with the memory, the
5 translation unit operative to associate a first program
6 unit, including a memory copy operation to be performed
7 between a first thread in a team of threads and a second
8 thread in the team of threads, with a set of one or more
9 instructions, the set of instructions to ensure that the
10 second thread copies data based, in part, on a first
11 descriptor associated with the first thread.

1 23. The apparatus as in claim 22 wherein the
2 address of the first descriptor is copied to a buffer by
3 the first thread and the second thread copies data into a
4 memory area associated with the second thread based, in

5 part, on address and data information associated with the
6 first descriptor.

1 24. The apparatus as in claim 23 wherein the second
2 thread copies data into a memory area associated with the
3 second thread utilizing, in part, a second descriptor
4 associated with the second thread.

1 25. The apparatus as in claim 22 wherein the first
2 thread copies an address of the first descriptor to a
3 buffer and sets a signal to enable the second thread to
4 copy data associated with the first descriptor to a
5 memory area associated with the second thread.

1 26. The apparatus as in claim 25 wherein the first
2 thread enters a wait state after the signal is set.

1 27. The apparatus of claim 26, wherein the first
2 thread exits the wait state after completion of the
3 data copy by the second thread.

1 28. The apparatus of claim 22 wherein the first
2 program unit is in source code format.

1 29. The apparatus of claim 28 wherein the first
2 descriptor is passed to the first program unit.

1 30. The apparatus as in claim 22 wherein the
2 translation unit translates the first program unit, in
3 part, into a second program unit in source code format

- 4 and the second program unit includes the memory copy
- 5 operation.

20110414001